

Appl. No. 09/874,137  
Amdt. dated March 8, 2005  
Reply to Office action of Oct. 21, 2004

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-13 (Cancelled).

Claim 14 (Previously Presented): A silent chain for reducing wear on a chain guide surface, the chain comprising:

a plurality of link plates each having a pair of tooth parts and pin holes, the link plates arranged in a thickness direction as well as in a length direction, adjacent link plates rotatably linked together using linking pins;

guide links each having a pair of pin holes disposed on outermost sides of the link plates and fixed to the linking pins;

wherein a first distance from a pin hole centerline of each link plate to a link plate surface facing the chain guide is greater than a second distance from a pin hole centerline of each guide link to a guide link surface facing the chain guide, the ratio of the first distance to the second distance effective to prevent substantial contact between the guide link surfaces and the chain guide surface when the chain engages the chain guide; and

the guide link pin holes have a diameter  $\phi D_g$ , the link plate pin holes have a diameter  $\phi D_l$ , the pins have a diameter  $\phi d$ , the link plate first distance is  $h_l$ , the guide

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link second distance is  $h_g$ , and the distance between the guide link surfaces and the chain guide is  $e$ ; the relationship between the link plate pin holes and  $e$  is expressed by the formula  $e = \frac{1}{2} (\phi DI - \phi d)$ ; and  $h_l - h_g$  is greater than or equal to  $e$ .

Claim 15 (Previously Presented): A silent chain according to Claim 14, wherein the guide link pin hole diameter  $\phi D_g$  is substantially the same as the pin diameter  $\phi d$ , and the ratio of the guide link distance  $h_g$  to the link pin hole diameter  $\phi DI$  is sufficient to permit the rotation of the link plates about the pins while preventing substantial contact between the guide link surfaces and the chain guide surfaces when the chain engages the chain guide.

Claim 16 (Currently Amended): A silent chain for reducing wear on a chain guide surface, the chain comprising:

a plurality of link plates each having at least one pair of tooth parts and a pin hole, one tooth part of each pair above and the other below a pin hole centerline, the link plates arranged in a thickness direction as well as in a length direction, adjacent link plates rotatably linked together using linking pins,

guide links disposed on outermost sides of the link plates and fixed to the linking pins,

wherein a clearance is provided between the link plate pin holes and the linking pins therein such that a first distance from the pin hole of each link plate to the distal surface of the tooth part facing the chain guide is less than a second distance from the

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pin hole centerline of each guide link to a guide link surface facing the chain guide, the link plate pin hole clearance and ratio of the first distance to the second distance is effective to prevent substantial abrasive contact between the tooth part distal surfaces and the chain guide when the chain engages the chain guide, and

~~A silent chain according to Claim 6, wherein~~ the guide link pin holes have a diameter  $\phi Dg$ , the link plate pin holes have a diameter  $\phi DI$ , the pins have a diameter  $\phi d$ , the link plate first distance is  $hl$ , the guide link second distance is  $hg$ , and the distance between the link plate surfaces and the chain guide is  $e$ ; the relationship between the link plate pin holes and  $e$  is expressed by the formula  $e = \frac{1}{2} (\phi DI - \phi d)$ ; and  $hg - hl$  is greater than or equal to  $e$ .

Claim 17 (Previously Presented): A silent chain according to Claim 16, wherein the guide link pin hole diameter  $\phi Dg$  is substantially the same as the pin diameter  $\phi d$ , and the ratio of the guide link distance  $hg$  to the link pin hole diameter  $\phi DI$  is sufficient to permit the rotation of the link plates about the pins while preventing substantial contact between the link plate teeth and the chain guide surfaces when the chain engages the chain guide.

Claim 18 (Previously Presented): A silent chain according to claim 12, wherein the guide plate contact surfaces face the chain guide surface.

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**Claim 19 (Previously Presented):** A silent chain having a plurality of links for reducing wear on a chain guide surface when the chain runs thereover, the chain comprising:

a plurality of guide plates having a pair of apertures therethrough for generally fixedly receiving pins to define links, the guide plates having a contact surface;

a plurality of link plates having a pair of apertures therethrough for pivotally receiving the pins to interconnect the links, the link plates having a contact surface with an area smaller than the surface area of the guide contact surface;

the guide plate apertures and the link plate apertures relatively positioned to generally maintain the guide plate contact surface in contact with the chain guide surface and the link plate contact surfaces spaced from the chain guide surface to reduce wear on the chain guide surface, wherein half of a clearance distance between the pin hole of said link plate and the linking pin in addition to a distance from a pin hole centerline of said guide link to guide link surface facing the chain guide is less than or equal to a distance from a pin hole centerline of the link plate to a link plate surface facing the chain guide.

**Claim 20 (Previously Presented):** A silent chain for reducing wear on a chain guide surface, the chain comprising:

a plurality of link plates each having a pair of tooth parts and pin holes, the link plates arranged in a thickness direction as well as in a length direction, adjacent link plates rotatably linked together using linking pins;

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guide links each having a pair of pin holes, the guide links disposed on outermost sides of the link plates and fixed to the linking pins at their pin holes;

wherein a first distance from a pin hole centerline of each said link plate to a link plate surface facing the chain guide is greater than a second distance from a pin hole centerline of each said guide link to a guide link surface facing the chain guide when in engagement with the chain guide, the ratio of the first distance to the second distance effective to prevent substantial contact between the guide link surfaces and the chain guide surface when the chain engages the chain guide, wherein half of a clearance distance between the pin hole of said link plate and the linking pin in addition to a distance from a pin hole centerline of said guide link to guide link surface facing the chain guide is less than or equal to a distance from a pin hole centerline of the link plate to a link plate surface facing the chain guide.

Claim 21 (Previously Presented): A silent chain for reducing wear on a chain guide surface, the chain comprising:

a plurality of link plates each having at least one pair of tooth parts and a pin hole, one tooth part of each pair above and the other below a pin hole centerline, the link plates arranged in a thickness direction as well as in a length direction, adjacent link plates rotatably linked together using linking pins,

guide links disposed on outermost sides of the link plates and fixed to the linking pins,

wherein a first distance from the pin hole centerline of each link plate to the distal

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surface of the tooth part facing the chain guide is less than a second distance from the pin hole centerline of each guide link to a guide link surface facing the chain guide, the ratio of the first distance to the second distance is effective to prevent substantial contact between the tooth part distal surfaces and the chain guide when the chain engages the chain guide, and wherein half of a clearance distance between the pin hole of the link plate and the linking pin in addition to a distance from a pin hole centerline of the link plate to a link plate surface facing the chain guide is less than or equal to a distance from a pin hole centerline of the guide link to guide link surface facing the chain guide.